

IT IS CLAIMED:

Sub a¹

1. A method of stimulating or modulating an immune response to an antigenic molecule in a mammalian subject, comprising administering to said subject an effective amount of a composition comprising the antigenic molecule contained in an HBsAg particle.

~~2. The method of claim 1, wherein said immune response is a CTL response.~~

Sub a²

3. The method of claim 2, wherein said CTL response is enhanced relative to that produced by the antigenic molecule alone.

4. The method of claim 2, wherein said antigenic molecule, when administered without said HBsAg particle, is substantially ineffective in producing a CTL response in said subject.

5. The method of claim 1, wherein said HBsAg particle is a recombinant HBsAg particle derived from a mammalian cell.

6. The method of claim 1, wherein said molecule is an antigenic protein or peptide.

7. The method of claim 10, wherein said molecule is HIVenv/V3 peptide.

8. The method of claim 1, wherein said composition further comprises an immunostimulating molecule contained in said HBsAg particle.

9. The method of claim 8, wherein said immunostimulating molecule is a cytokine.

Sub a³

10. The method of claim 8, wherein said immunostimulating molecule is an oligonucleotide.

11. A method of stimulating or modulating an immune response to HBsAg in a mammalian subject, comprising administering to said subject an effective amount of a composition comprising an immunostimulating molecule contained in an HBsAg particle.

~~12. The method of claim 11, wherein said immune response is a CTL response.~~

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13. The method of claim 12, wherein said subject is a nonresponder at the CTL level when administered HBsAg particles without said immunostimulating molecule.

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14. The method of claim 11, wherein said immunostimulating molecule is a cytokine.

15. The method of claim 11, wherein said immunostimulating molecule is cholera toxin (CT) protein or staphylococcal enterotoxin B (SEB) protein.

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16. The method of claim 11, wherein said immunostimulating molecule is an oligonucleotide.

17. A composition comprising an HBsAg particle and, contained therein, a biologically active molecule.

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18. The composition of claim 17, wherein said molecule is an antigen.

19. The composition of claim 18, wherein said molecule is HIVenv/K^d peptide.

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20. The composition of claim 17, further comprising an immunostimulating molecule contained in said HBsAg particle.

21. The composition of claim 17, wherein said biologically active molecule is an immunostimulating molecule.

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22. The composition of claim 21, wherein said immunostimulating molecule is a cytokine.

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23. The composition of claim 21, wherein said immunostimulating molecule is an oligonucleotide.

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24. The composition of claim 21, wherein said immunostimulating molecule is cholera toxin (CT) protein or staphylococcal enterotoxin B (SEB) protein.

25. The composition of claim 17, further comprising a glycolipid incorporated into the exterior surface of the lipid bilayer of said HBsAg particle.

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26. The composition of claim 17, wherein said composition is prepared by incubating said particle in an aqueous medium in the presence of said molecule.

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27. A method of incorporating a biologically active molecule into an HBsAg particle, comprising incubating said particle in an aqueous medium in the presence of said molecule.

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28. The method of claim 27, wherein the temperature of said incubating is between about 35°C and about 60°C.

29. The method of claim 27, further comprising incorporating a glycolipid into the exterior
5 surface of said HBsAg particle.

30. The method of claim 29, wherein said incorporating comprises co-incubating said glycolipid with said HBsAg particles and said biologically active molecule.

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